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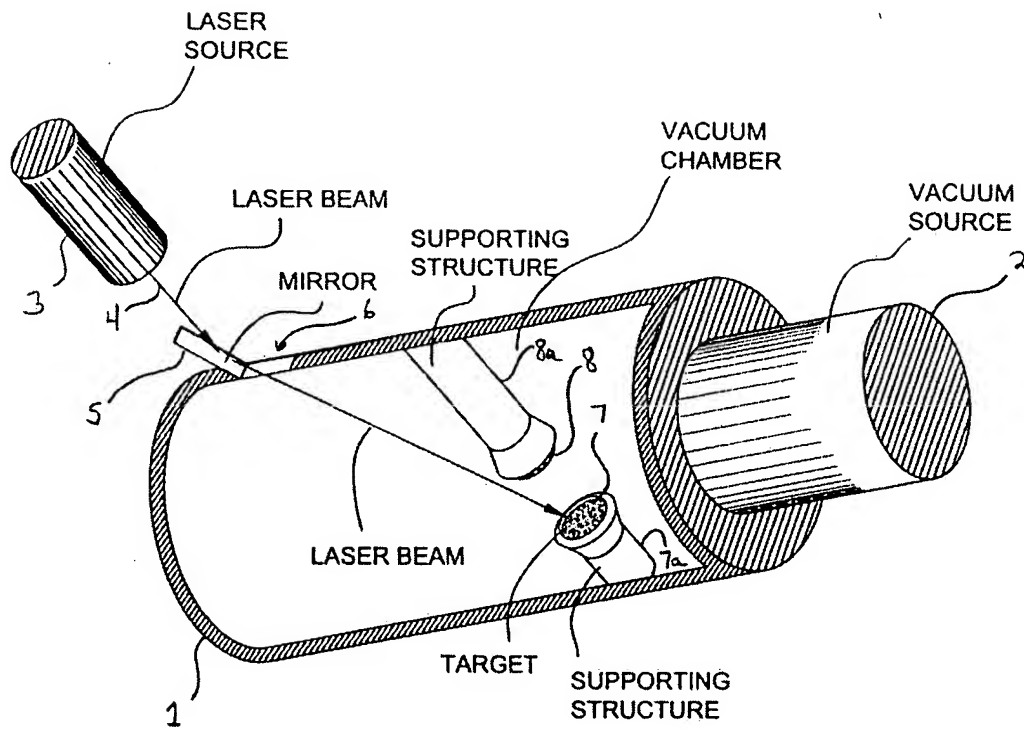


FIG. 1

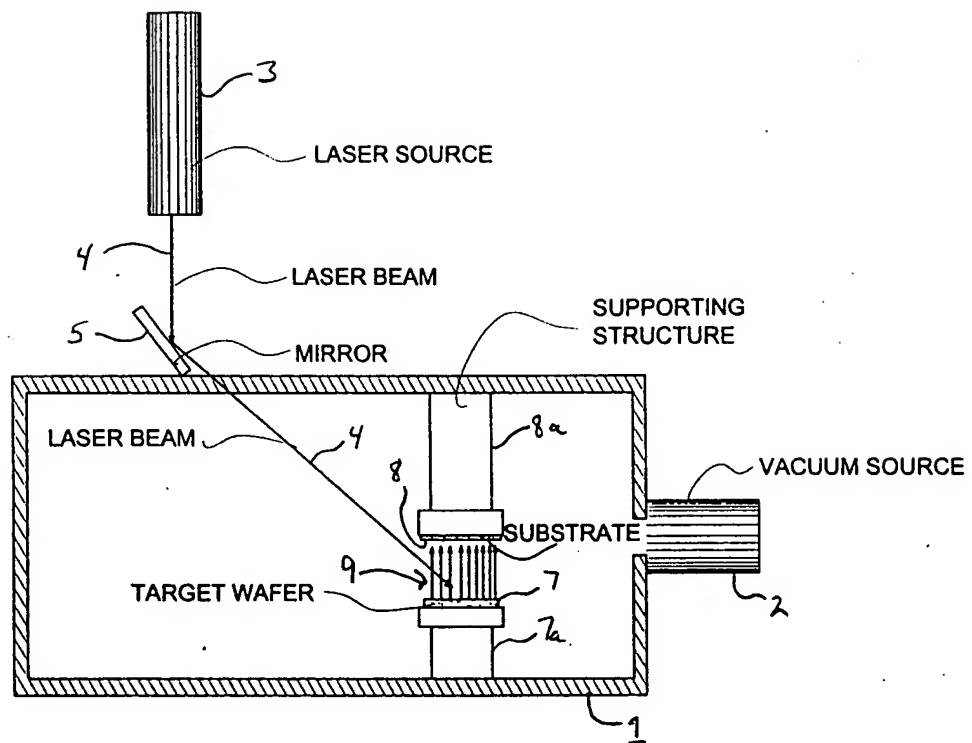


FIG. 2

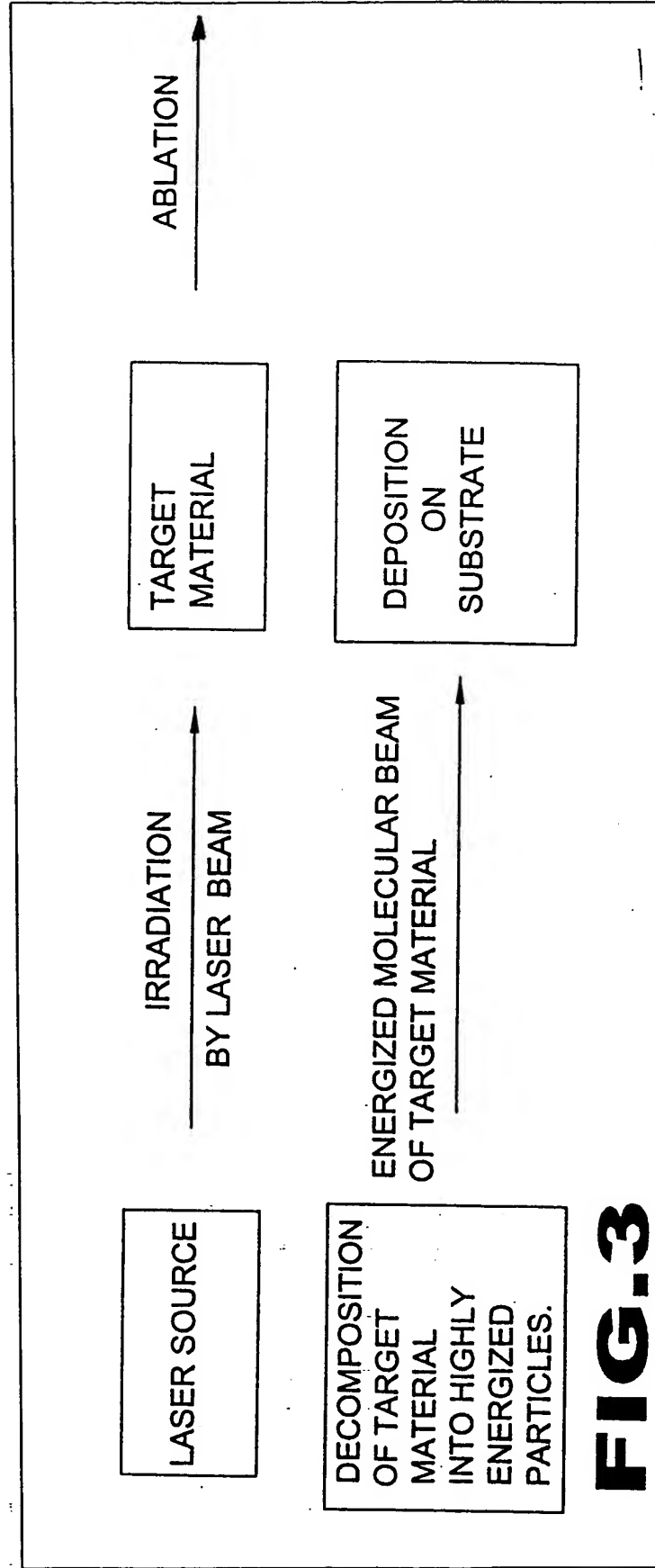
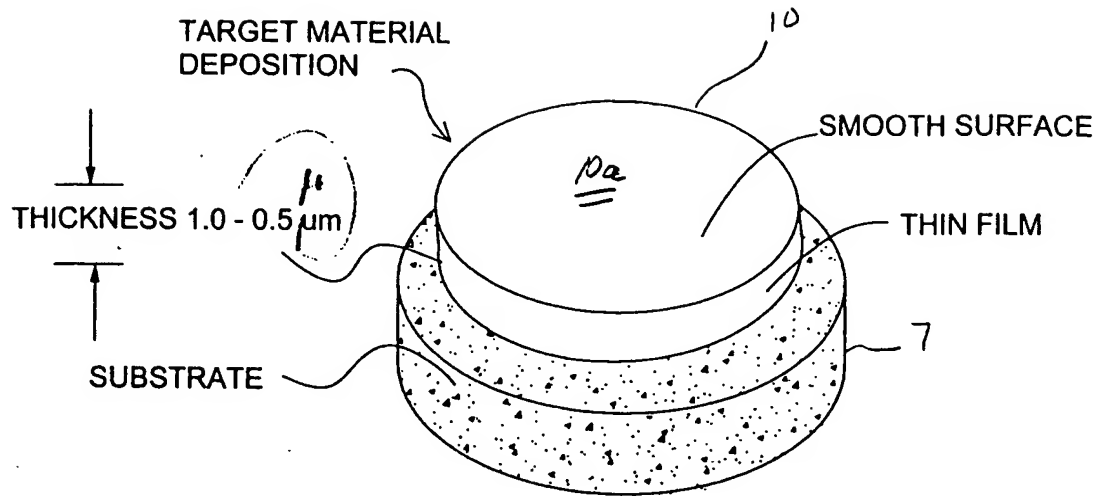


FIG.3



ISOMETRIC VIEW

FIG.4

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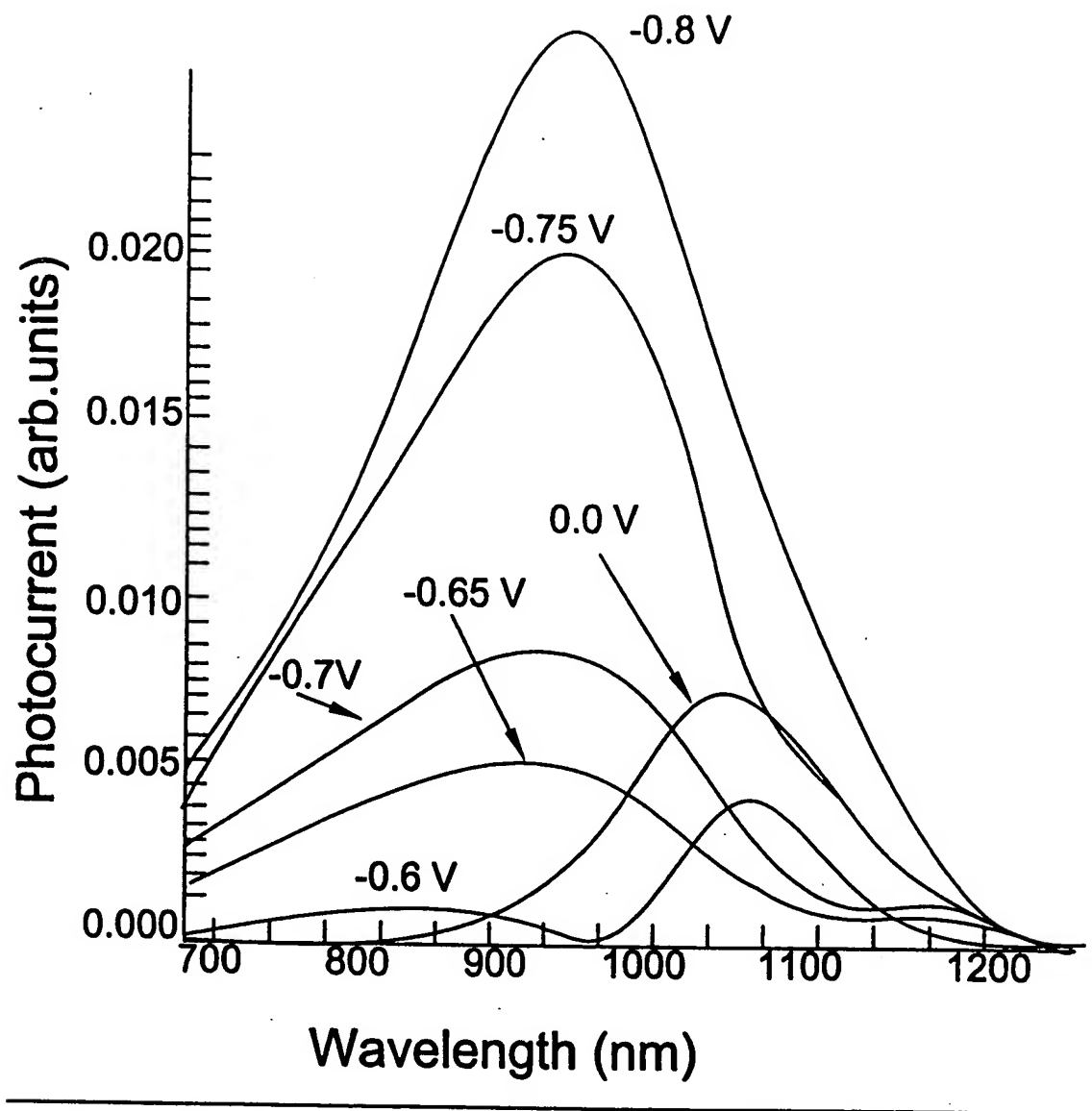


FIG 5A

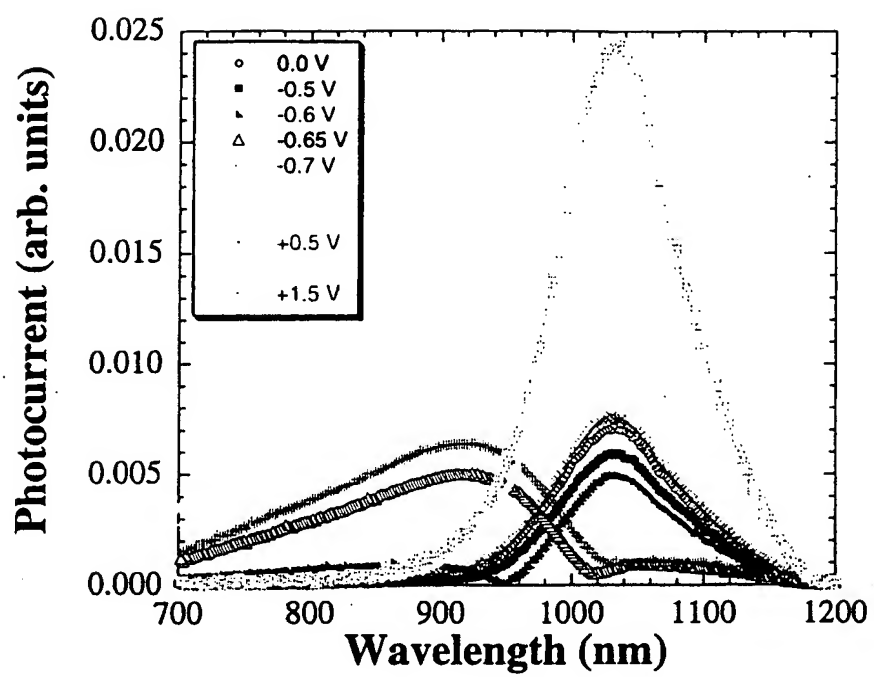


FIG. 5B

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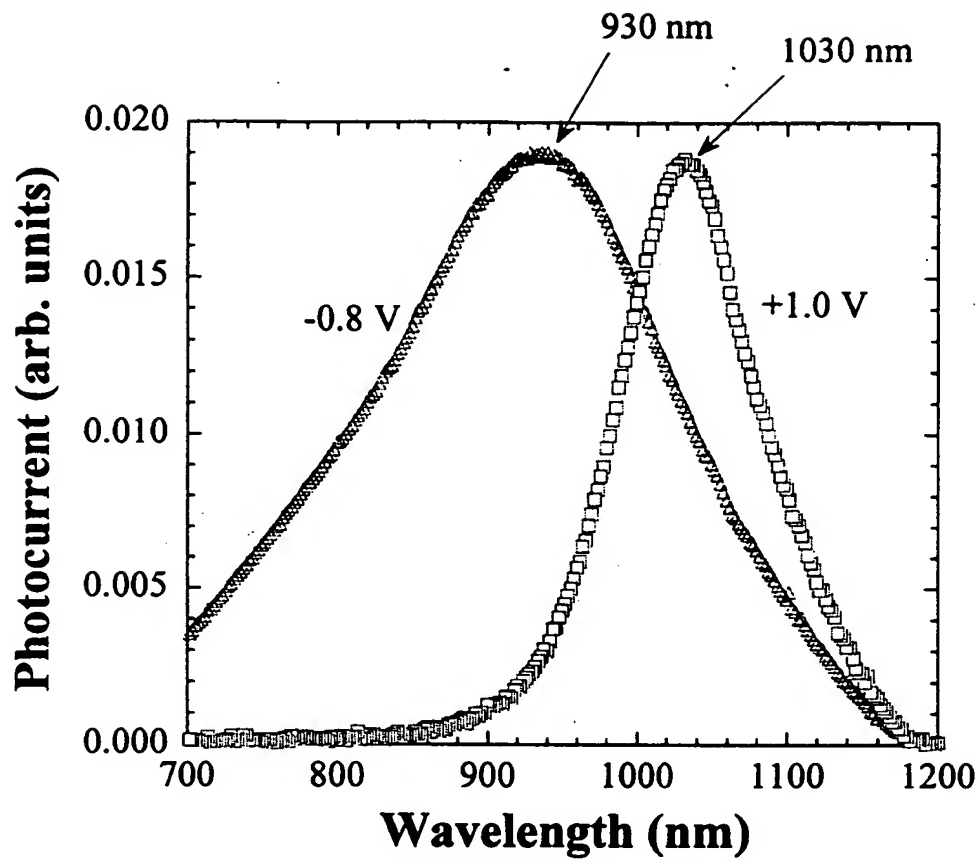


FIG. 5C

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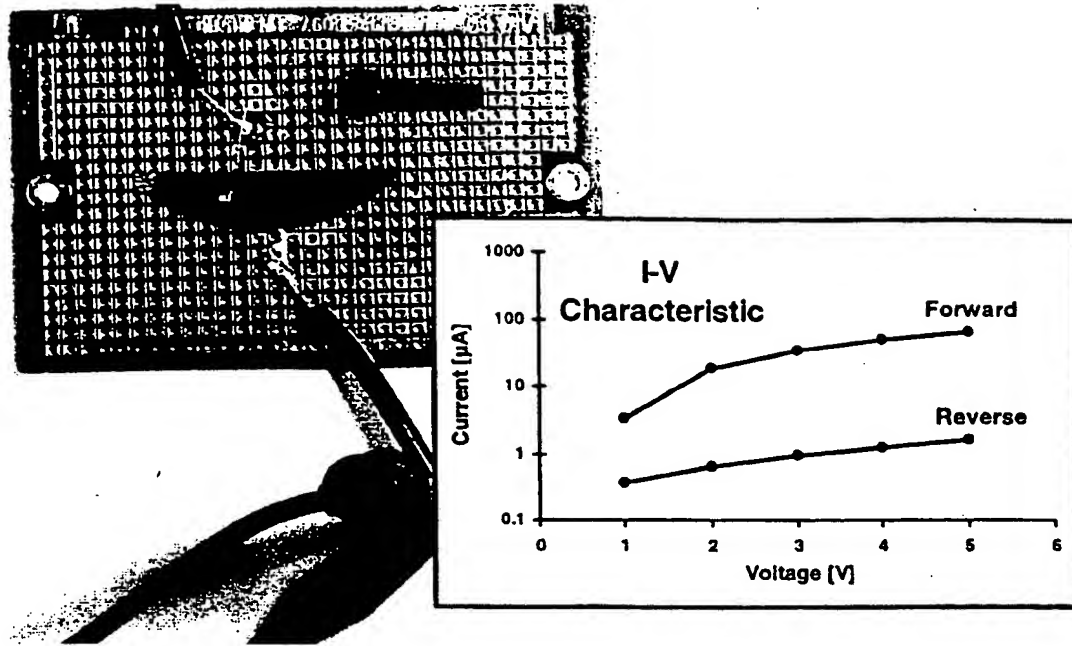


FIG. 6A & B

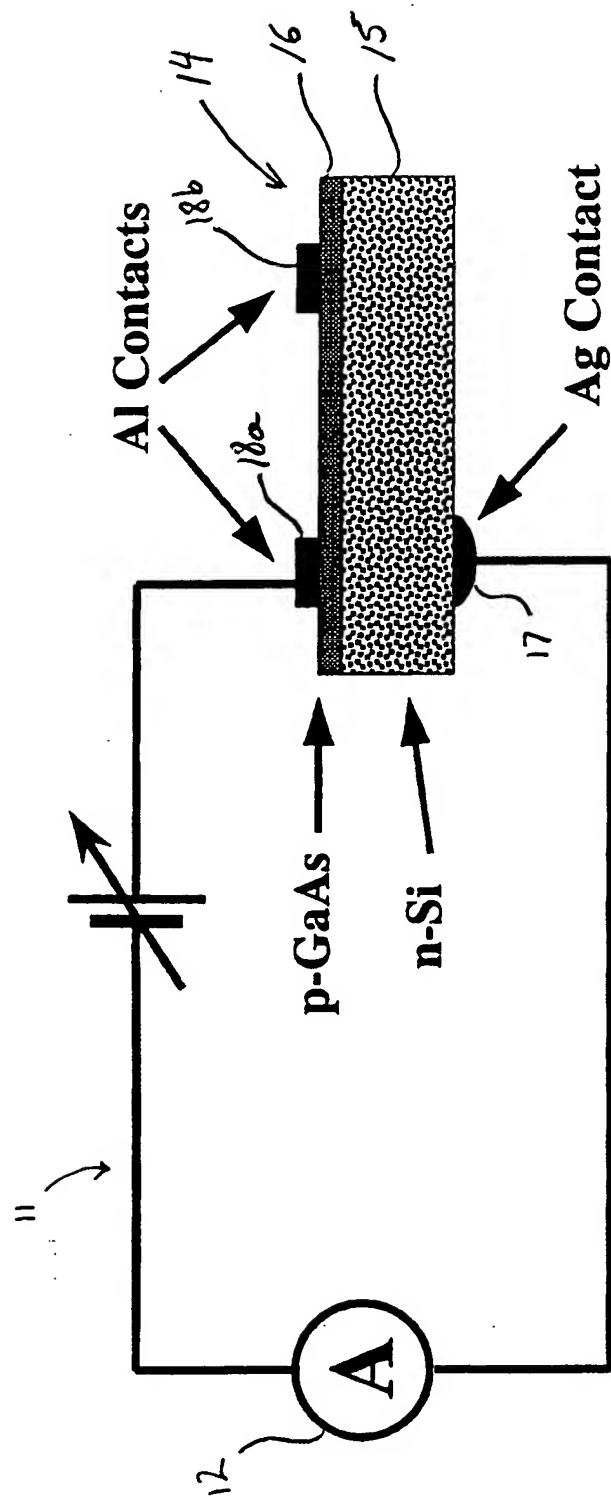


FIG. 7

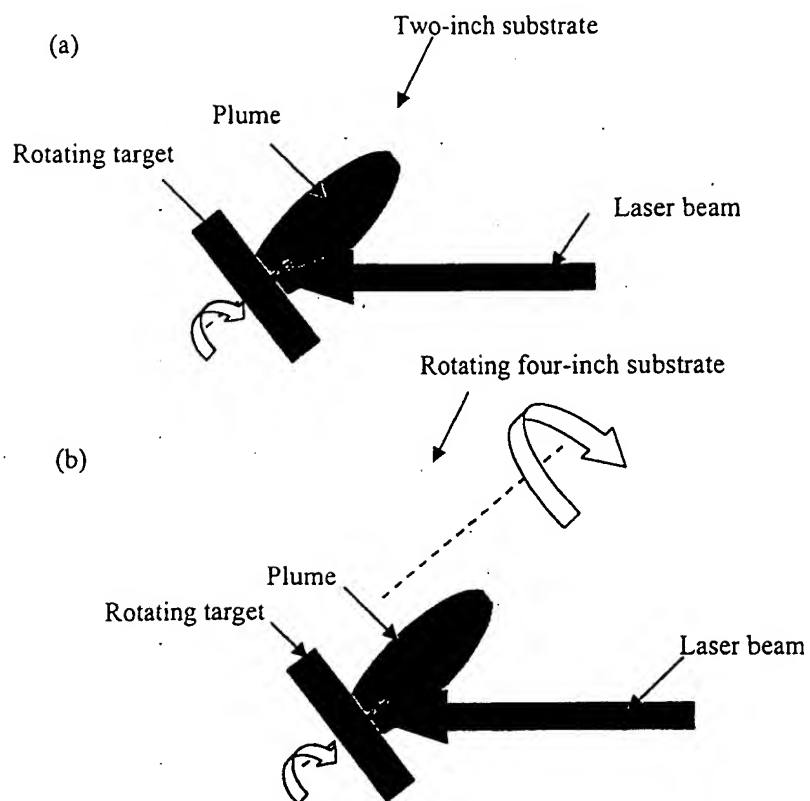


FIG. 8 A & B

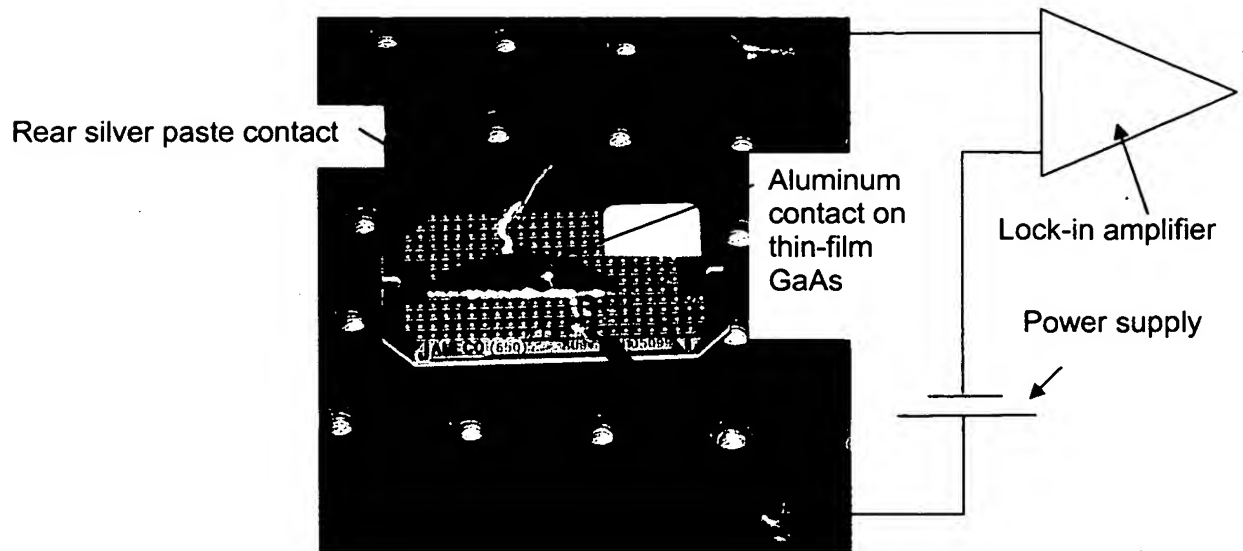


Figure 9: Image of the p-GaAs/n-Si sample including schematically the circuit used for the photocurrent measurements. For the optical excitation, the sample was illuminated between the Al contacts.

FIG. 9

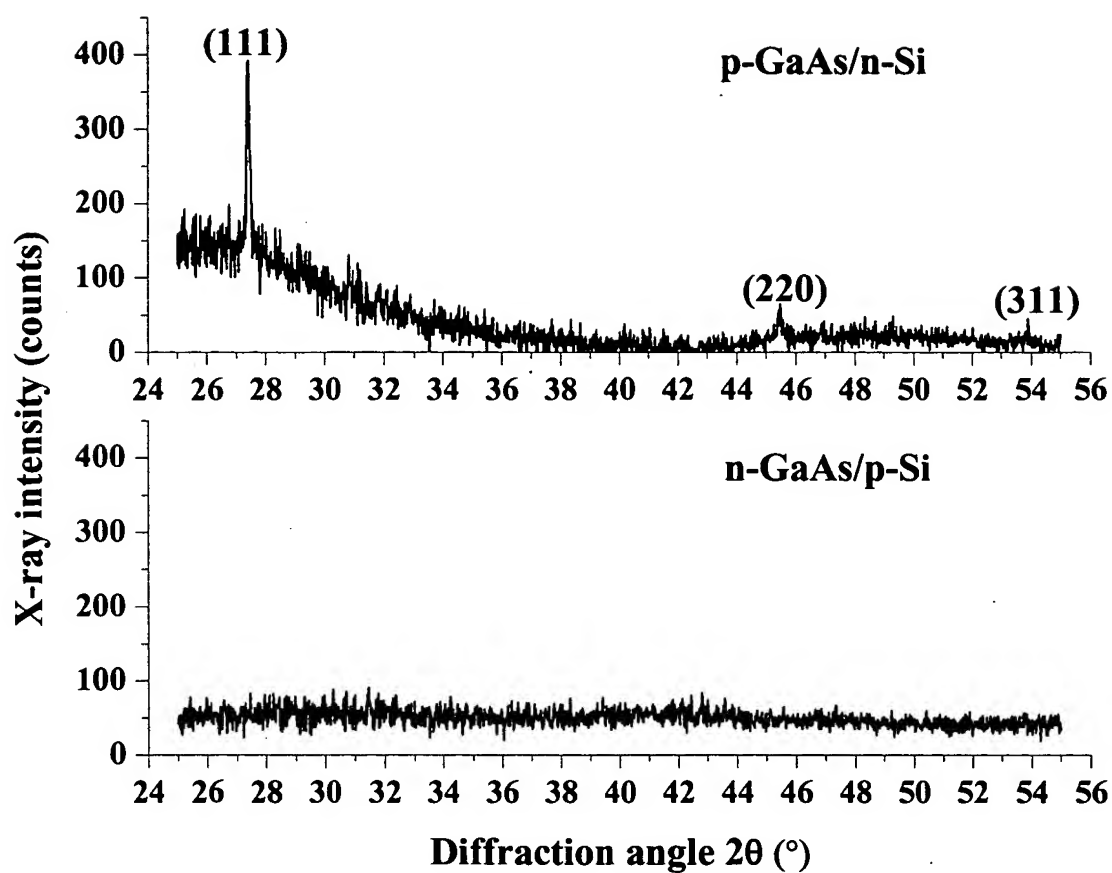


Figure 10: X-ray diffraction patterns for both samples. The background signal of the substrate has been subtracted.

FIG. 10

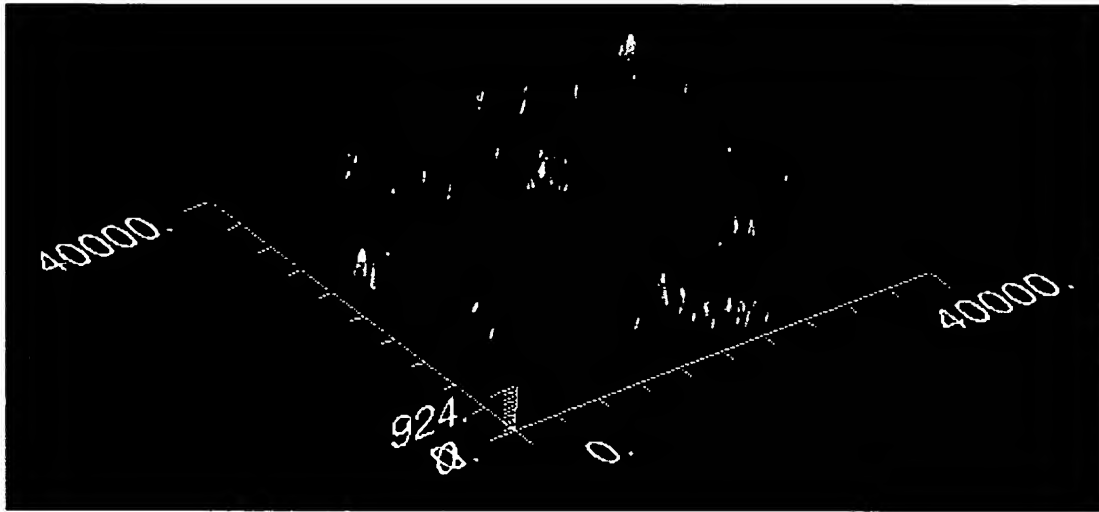


Figure 11: AFM image of the surfaces of the p-GaAs/n-Si sample (units in nm). The GaAs surface is rather smooth and flat containing several peaks and craters, which are most likely caused by the impact of high-energy particles or heavy clusters.

FIG. 11

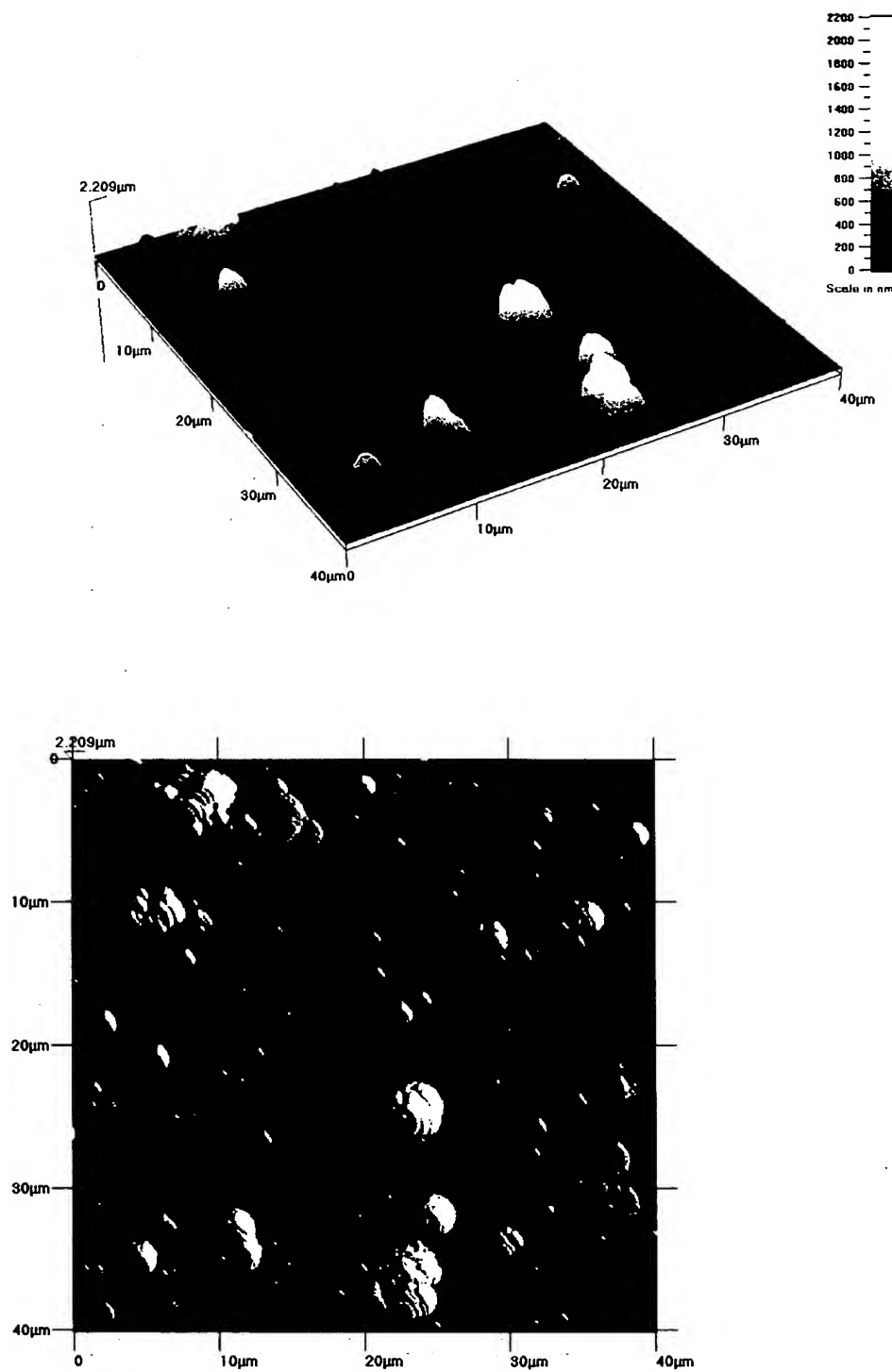


Figure 12: Three dimensional and top AFM image of the surface of the n-GaAs/p-Si sample (units in μm). The film is fairly smooth and looks similar to the surface image shown in Fig.11.

FIG. 12

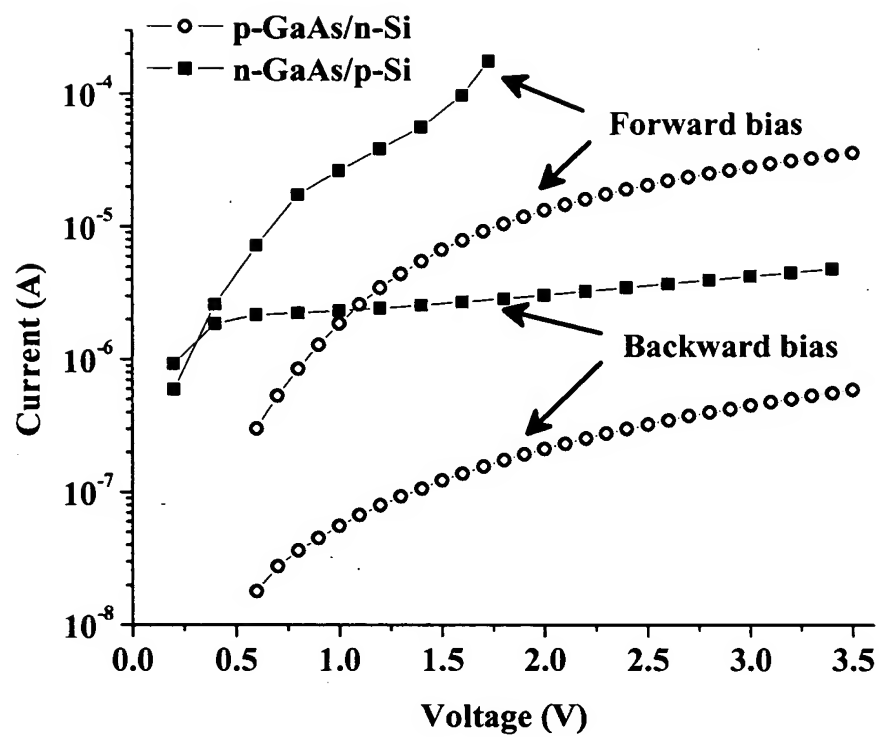


Figure 13: I/V characteristic of the p-GaAs/n-Si and n-GaAs/p-Si sample.

FIG. 13

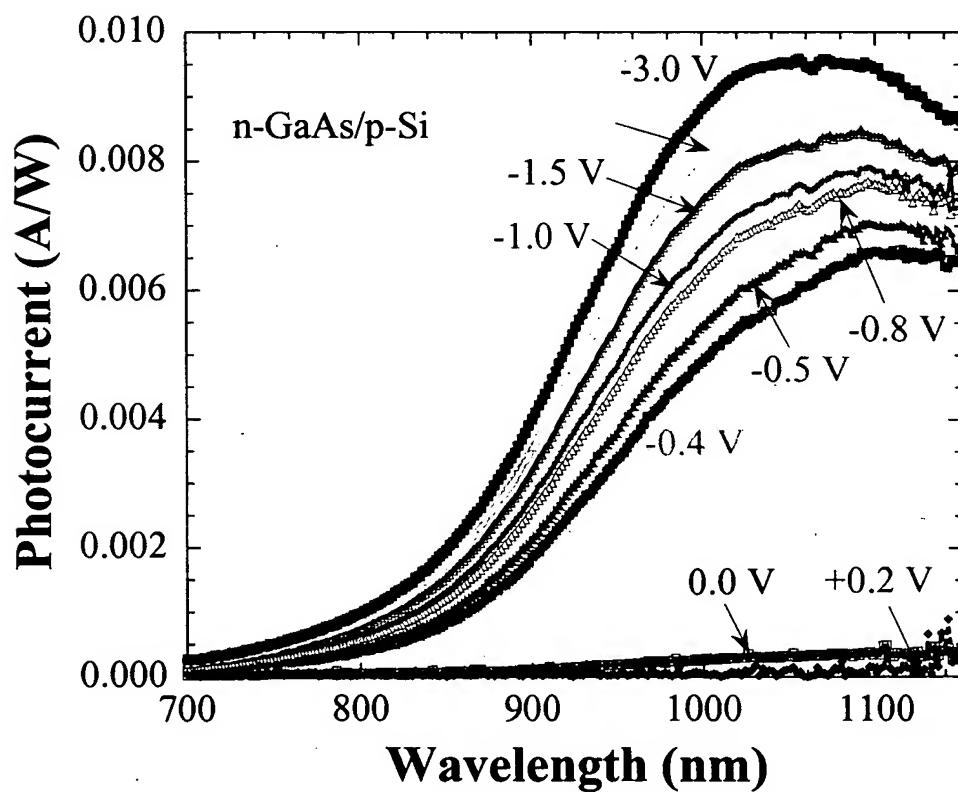
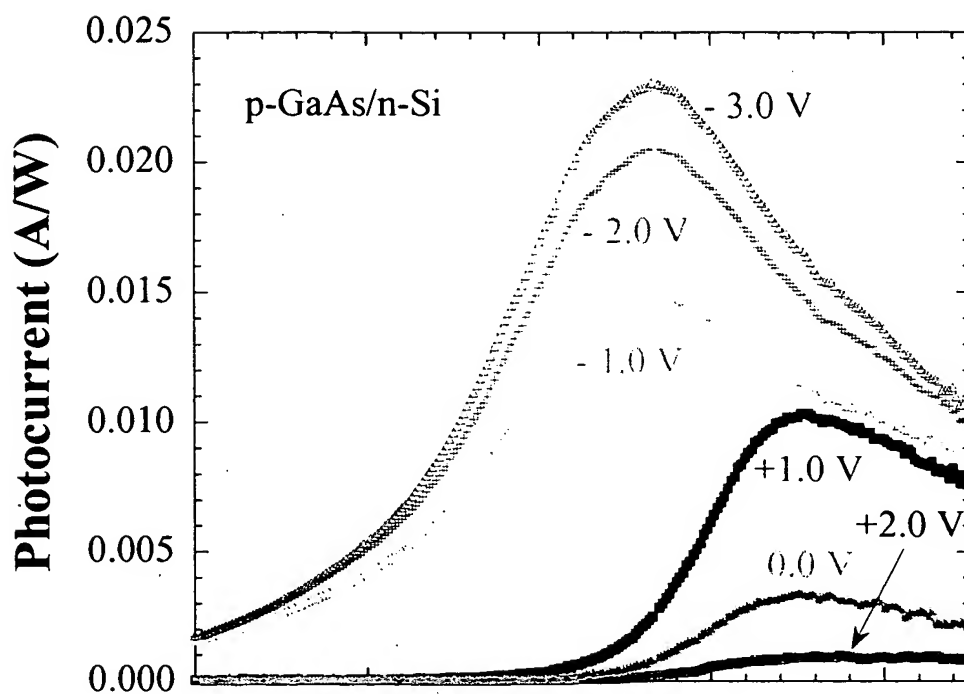


FIG. 14(a) and FIG. 14(b)

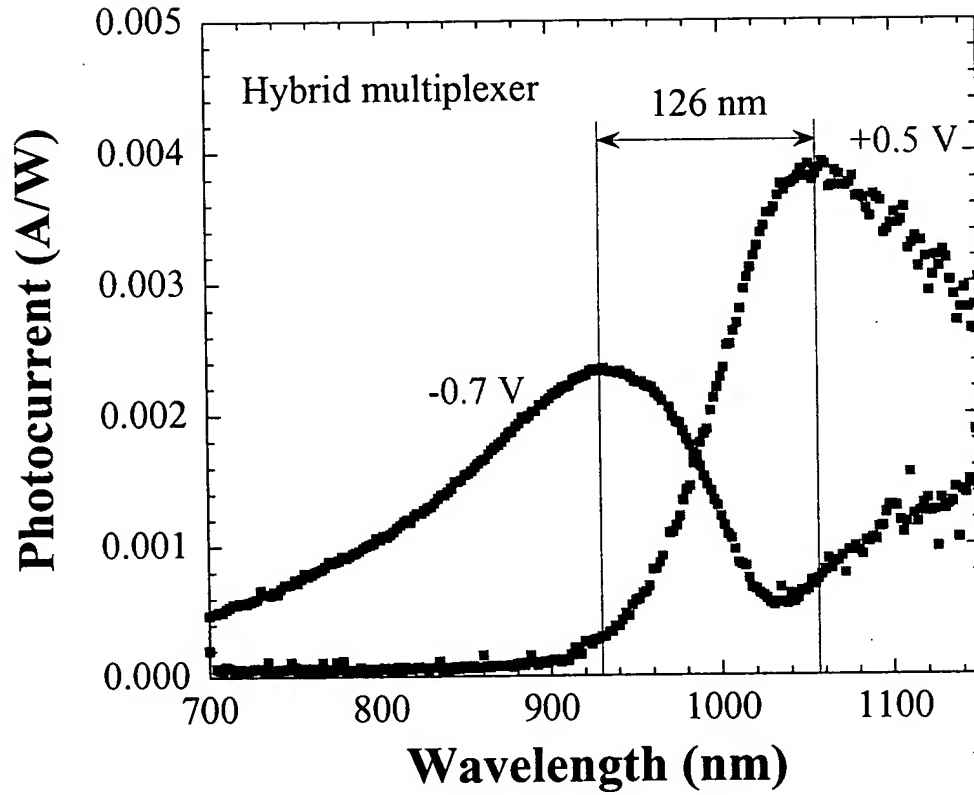


Figure 15: The realization of a hybrid multiplexer by switching the responsivity of the p-GaAs/n-Si hetero-junction between the Si substrate and the thin-film GaAs. The separation of the peaks is 126 nm.

FIG. 15

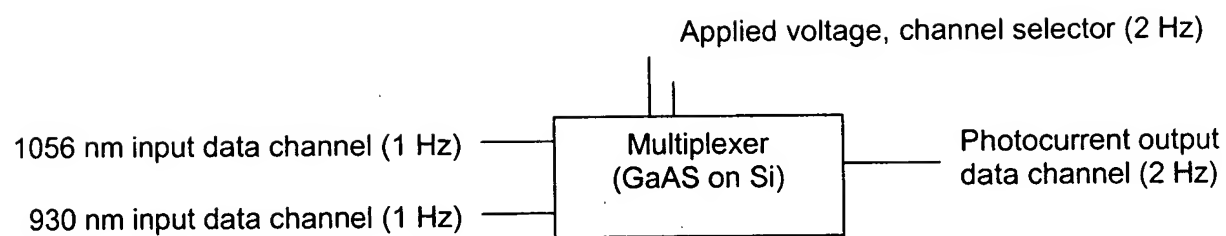


FIG. 16

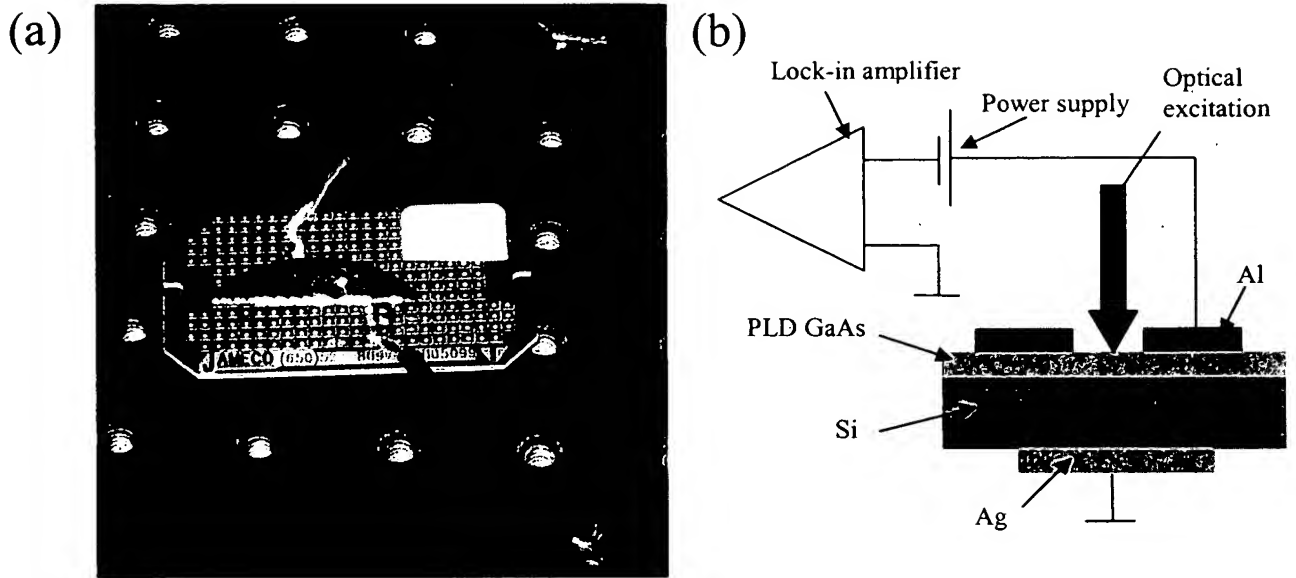
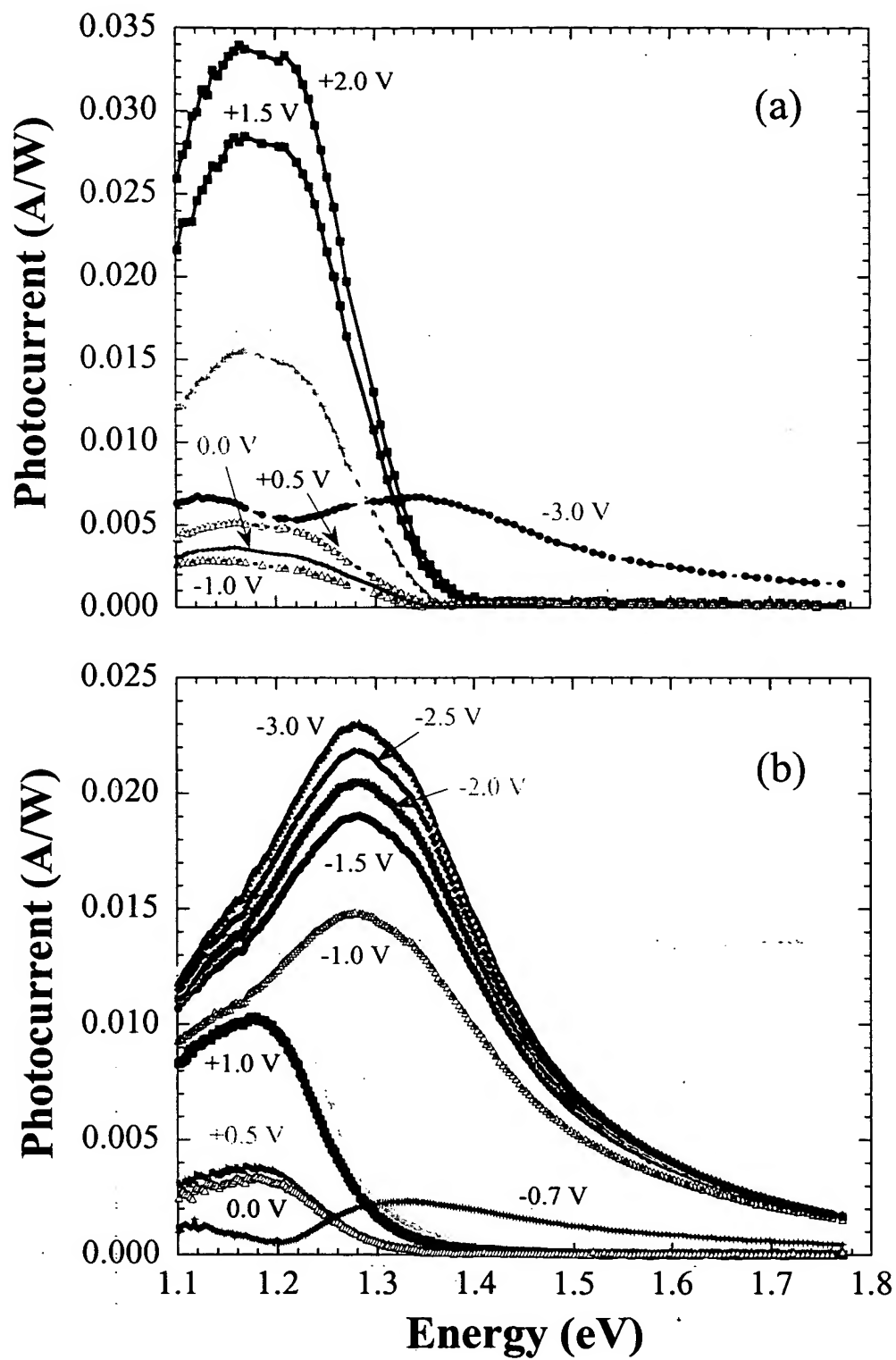


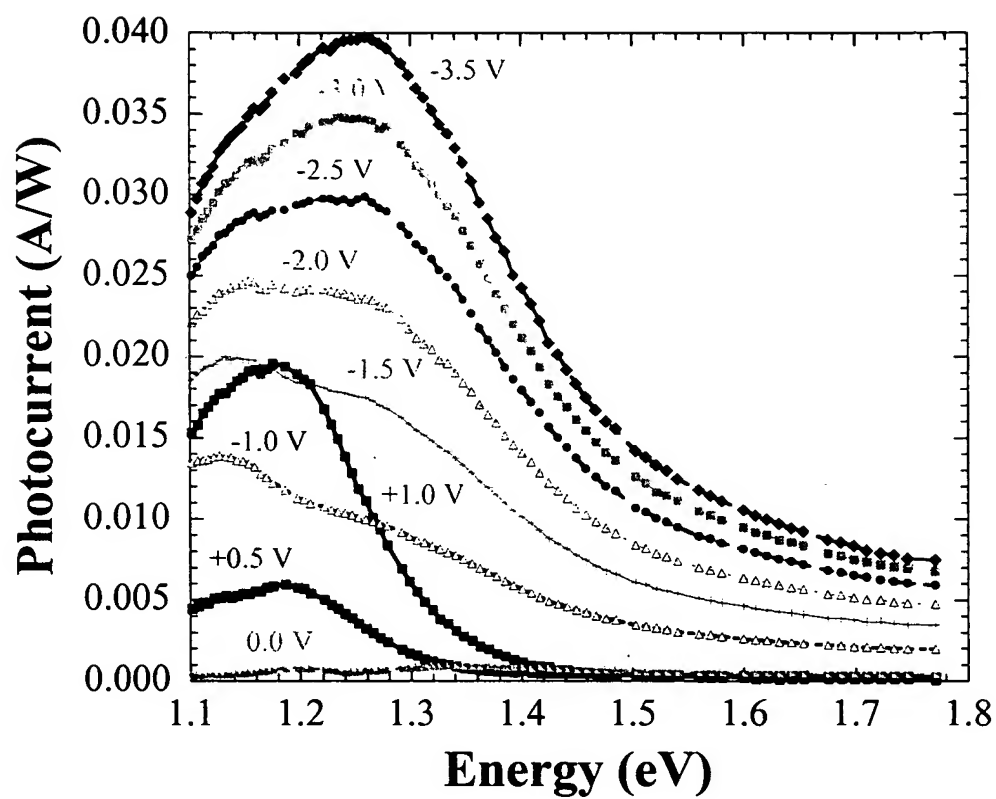
Figure 17: (a) Image of a p-GaAs/n-Si sample and (b) the schematic sketch of the circuit used to measure the PC.

FIG. 17



Figures 18(a) and 18(b): (a) PC of the sample formed at 355 nm and (b) PC of the sample formed at 532 nm for various forward (+) and reverse biases.

FIG. 18



PC of the sample formed at 1064 nm.

FIG 19

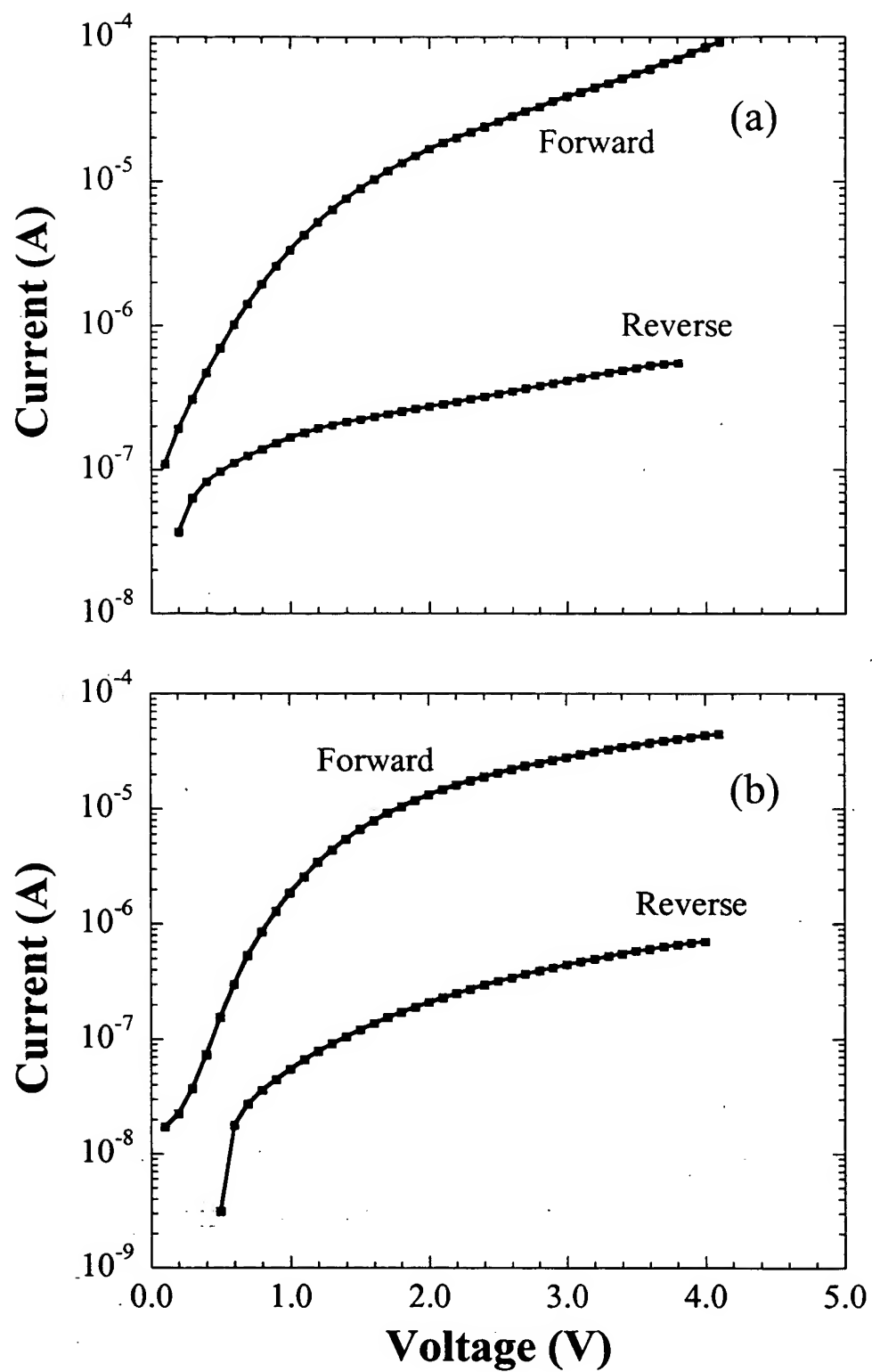


Figure 20(a) and 20(b): I/V characteristic in the dark of the sample formed (a) at 355 nm and (b) at 532 nm.

FIG. 20A and FIG. 20B

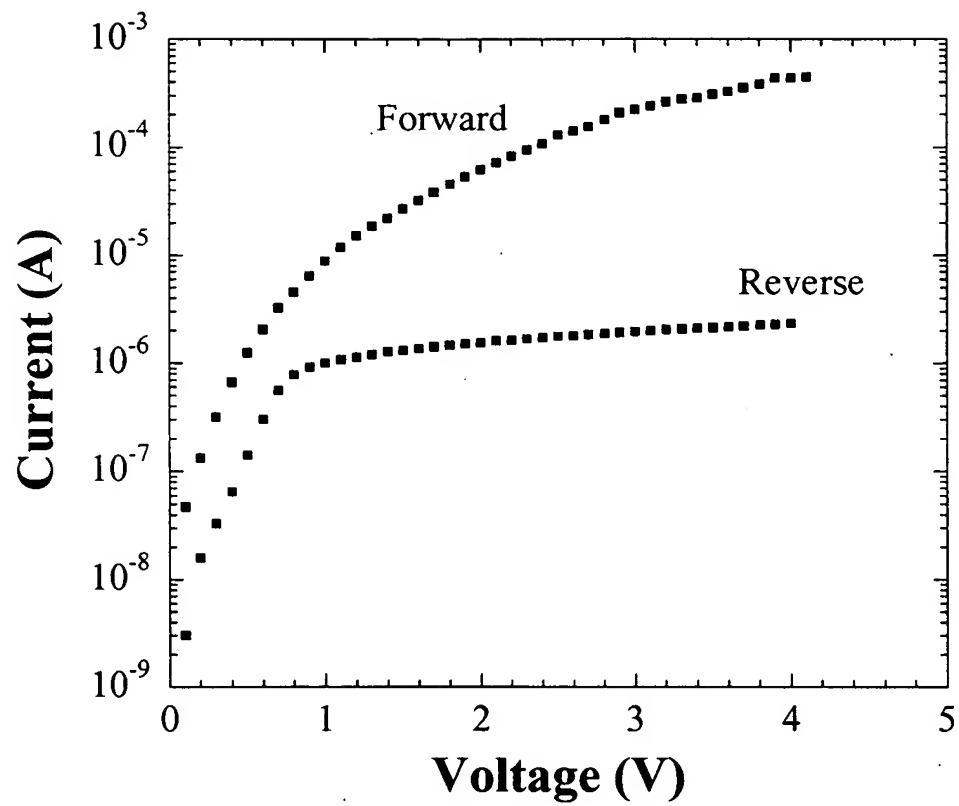
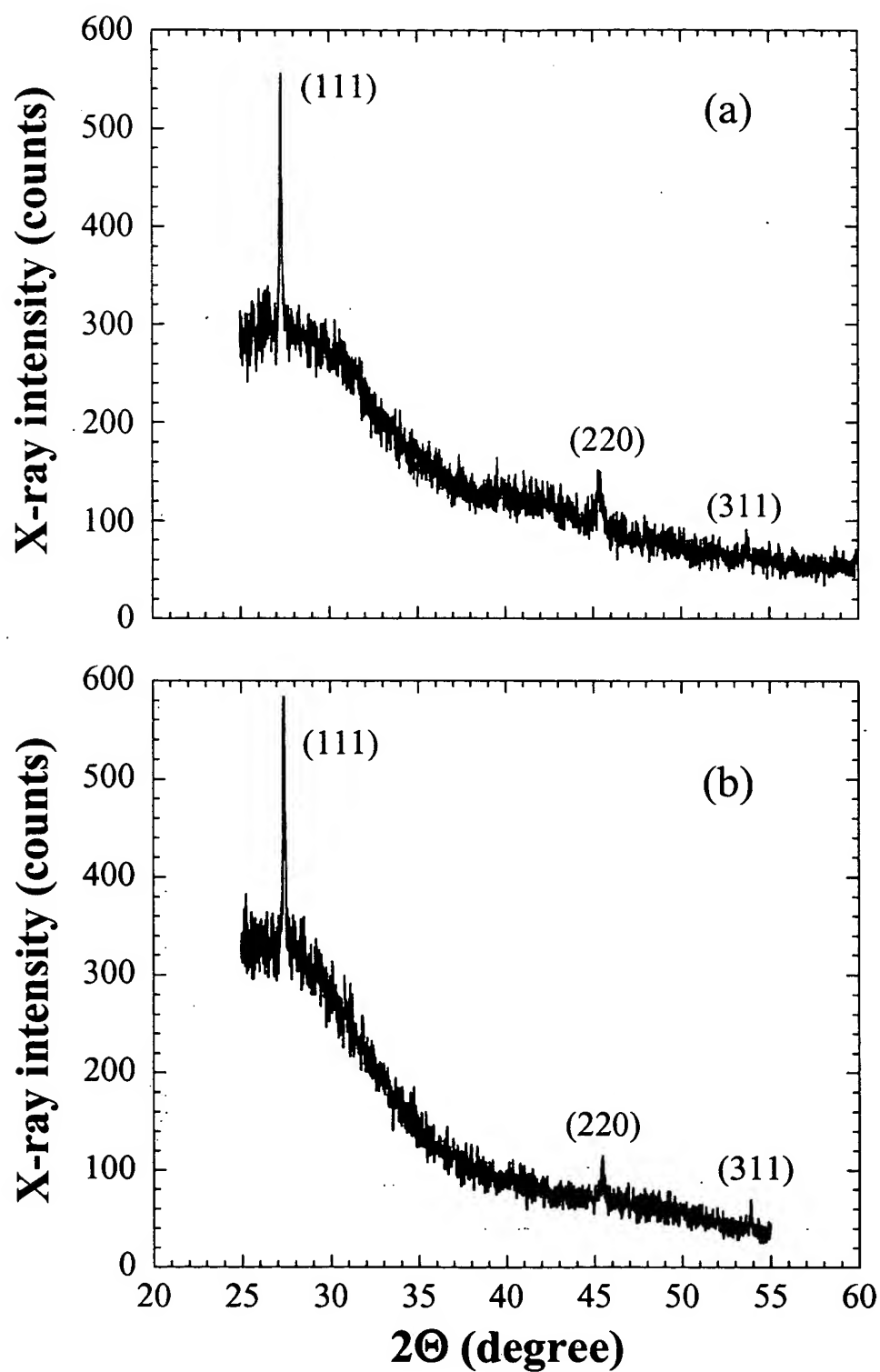


Figure 21: I/V characteristic in the dark of the sample formed at 1064 nm.

FIG. 21



Figures 22(a) and 22(b): X-ray patterns of the sample formed at (a) 355 nm and (b) 532 nm.

FIG. 22A and FIG. 22B

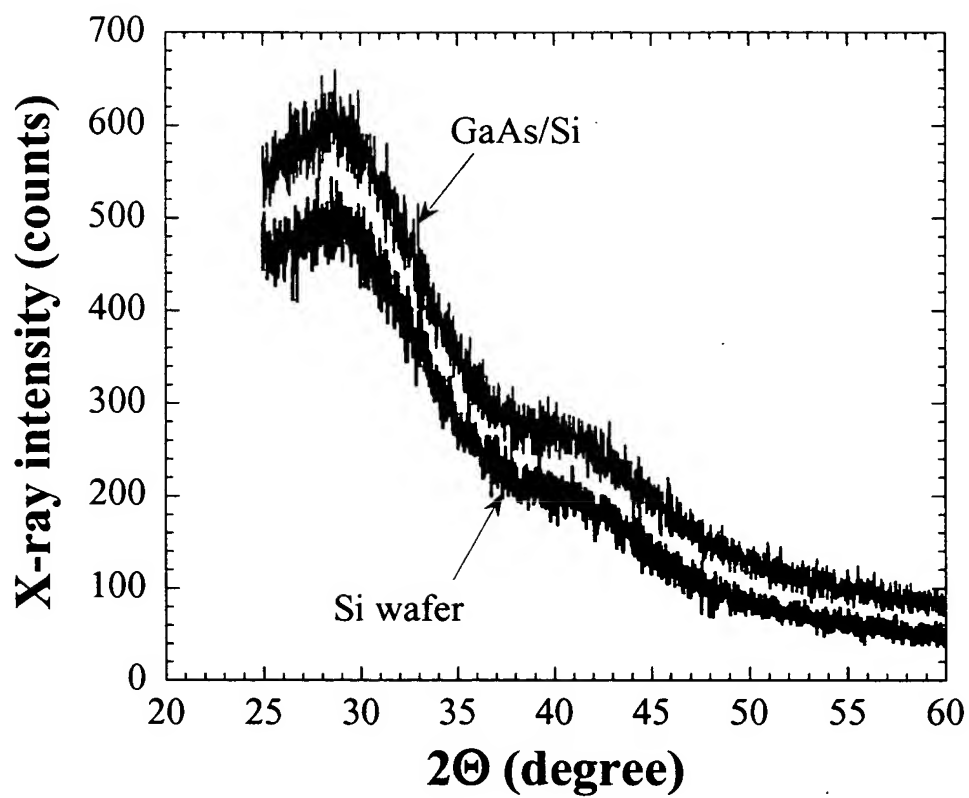


Figure 23: X-ray signal of the film formed at 1064 nm and of a Si substrate without film.

FIG. 23